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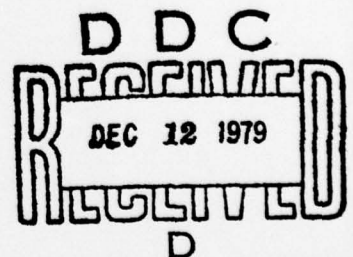
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VALIDITY OF ASSOCIATE RATINGS OF PERFORMANCE POTENTIAL BY ARMY AVIATORS

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Pilot Selection

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OF PERFORMANCE POTENTIAL
BY ARMY AVIATORS.

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VALIDITY OF ASSOCIATE RATINGS OF PERFORMANCE POTENTIAL BY ARMY AVIATORS

BACKGROUND

In response to a TRADOC request, the Fort Rucker Field Unit of the Army Research Institute for the Behavioral and Social Sciences has undertaken research to determine attributes which predict aviators who are potentially outstanding combat performers. The effort consists of the following three interrelated tasks: (1) Development of an attack-pilot profile from analysis of proven performance (Eastman, Leger and Shipley, 1977); (2) development of a rating form for assessment of potential attack pilots; and (3) selection and evaluation of AH-1 trainees using the findings of tasks 1 and 2.

Currently, no systematic selection of candidates for AH-1 transition training exists. Many trainees are assigned to transition training because they are due for reassignment. A need exists to provide unit commanders with reliable and valid instruments to select aviators for AH-1 transition training. If unit commanders had more and better information, an improved fit of aviators to training assignments would result. The research reported herein is part of task 2 and was conducted to determine the predictive validity of unit level ratings of AH-1 candidates.

OBJECTIVES

The principal objective of this research is to determine the validity of the AH-1 candidate evaluation form as a predictor of trainee performance in the AH-1 transition course.

It was hypothesized that AH-1 (COBRA) qualified pilots in FORSCOM units would be able to predict, by means of associate ratings, the AH-1 training performance of aviators from their units. It has already been shown that COBRA pilots in cavalry and attack units demonstrate high inter-rater reliability when evaluating the potential success aviators in their units for AH-1 transition and gunship pilot duties (Eastman and McMullen, 1976). This study will determine validity of the Attack Pilot Candidate Evaluation Form in predicting the flight and gunnery transition grades of AH-1 students. An additional variable of interest was the relationship between length of rater-ratee acquaintance and magnitude of the ratings (Freeberg, 1969; Lewin and Zwany, 1976).

METHOD

Ratees: The ratees were 45 FORSCOM aviators, all rotary wing qualified and assigned to AH-1 transition training at Fort Rucker. The ratees were

selected from AH-1 class rosters if their unit of origin was one with AH-1 aircraft in the TOE. The units were selected on a worldwide basis and are representative of aviation units with COBRA pilots.

Raters: The raters were AH-1 qualified aviators from the units of the AH-1 students. The number of raters in the sample units varied considerably. Because of the requirements of field duty, not all AH-1 qualified aviators were available to evaluate the students from their units. However, no systematic basis for nonavailability which would influence the results of this study was apparent.

Procedure: The AH-1 transition course lasts 5 weeks, and the classes are begun every two weeks. Beginning in Oct 76 when rosters became available for an incoming class they were examined and students arriving from units which were likely to have an attack pilot element were earmarked. The student's unit was then contacted to confirm that a number of COBRA pilots were available. Next a package of rating forms was sent to a point of contact (POC) such as unit XO or a senior attack pilot. The POC then distributed the rating forms and an envelope to all the available AH-1 pilots and later collected them in sealed envelopes to insure confidentiality. Finally, the set of rating forms was returned to ARI in a mailer provided for that purpose. This procedure was followed for all classes during a 14 month period between October 1976 to December 1977. It was necessary to include this large number of classes because only a minority of AH-1 students met the criteria established. Many of the students who could not be used were turnaround Initial Entry Rotary Wing (IERW) students who had just finished flight school. Another large group came from units with no COBRA pilots.

Rating Scale: The rating form used was designed to have raters discriminate among ratees on a set of desirable characteristics for attack pilots. The characteristics rated were identified during structured interviews of 58 attack pilots with combat experience at Ft Knox, Ft Hood and Ft Rucker. On the evaluation form the rater (the AH-1 qualified pilot) is instructed to consider the set of attack pilot characteristics and to assign the AH-1 student a numerical rank, between 1 and 25, representing standing within a typical group of 25 pilots. The rater was also provided space within which to write a 2 - 3 sentence word picture justifying the numerical rating assigned. Additional information was also recorded on where the rating was conducted and the type and duration of the relationship between the rater and ratee. Detailed instructions were provided, some of which only apply when the rating form is to be used to rate a group of AH-1 candidates (see Appendix A).

RESULTS AND DISCUSSION

The median rank order rating was computed for each student from the set of ratings received from his unit. This measure was used to predict two criteria: (1) AH-1 flight transition grades, and (2) AH-1 gunnery grades. The predictive validity of the median rating was determined by computing a Pearson's r between the predictor and each criterion grade. The results in Table 1 show that the validity coefficient for ratings on flight transition grades, $r = .32$, was high enough to be useful as well as statistically

significant ($p < .01$). By contrast, the lower predictive validity of ratings for the gunnery phase of AH-1 transition is probably not useful as a

TABLE 1
CORRELATIONS BETWEEN TRANSITION GRADES, GUNNERY GRADES AND
THE MEDIAN RATINGS RECEIVED BY AH-1 STUDENTS (N = 45)

Variables	r	p	r ²
AH-1 transition and median rating	.32	<.01	.10
AH-1 gunnery and median rating	.21	<.05	.04
AH-1 transition and gunnery	.33	<.01	

predictor, $r = .21$. The significant difference between these two validities ($p < .01$) may be attributable to differences in the quality of grading the two phases. During the flight transition phase, performance criteria and IP standardization have been established for grading AH-1 students. During the gunnery stage, grading is not based on specified performance criteria, e.g., accuracy is not graded. Improvements in gunnery grading criteria are needed before this training performance can be adequately predicted.

Although the validities obtained are not very high, the predictive validity of .32 accounts for more than 10% of the variance in transition grades and will be useful in selecting AH-1 students. Moreover, the validities reported are a very conservative underestimate of those which would be obtained with an unrestricted population of AH-1 candidates. Because the ratees had already been selected for AH-1 transition, it is reasonable to expect that the ratings of marginal and average aviators were somewhat inflated. This was supported by positive skewing of the distribution of ratings which suggested the use of the median as a datum. Because these data were obtained by mail, the number of ratees was probably fewer than would be possible than if ratings had been conducted as a unit level operational procedure.

The criteria grades for both the transition and gunnery phases are not very discriminating of training performance because of management and grading policies/practices which preclude failures and encourage giving 85s to graduate aviators in advanced training. Some indication of this is provided by the means and standard deviations of flight transition and gunnery grades shown in Table 2. Considering these factors, the .32 validity obtained for prediction of gunnery grades is an encouraging finding in conjunction with the

high reliability demonstrated by aviator associate ratings (Eastman and McMullen). Properly used at the unit level, associate ratings would provide a useful selection tool to unit commander and training officers.

TABLE 2
MEANS AND STANDARD DEVIATIONS OF AH-1 TRANSITION
AND GUNNERY GRADE (N = 45)

Phase of Instruction	\bar{X}	SD
Flight Transition	84.13	3.04
Gunnery	85.93	1.77

No significant relationship was found ($r = .09$) between the length of acquaintanceship of the rater and ratee and the magnitude of the ratings given.

A related AH-1 Candidate Selection Study included an open ended section in which the rater gave a verbal picture of the ratees. The verbal content of this section was analyzed for those aviators who scored above average in the AH-1 transition. The comments for those who were rated high (above 8.0), or medium (8-15), and low (16-25) are presented in Table 3.

CONCLUSIONS

The validity ($r = .32$) of ratings in predicting AH-1 flight transition training grades indicates that ratings of potential transition students by COBRA pilots would provide useful information to unit commanders and training officers in selecting aviators for training. The true validity of ratings is anticipated to be somewhat higher than that obtained in this study, because of limitations imposed by the procedures and available sample.

Highly rated good students were regarded to be aggressive leaders while the low rated poor students lacked aggressiveness and did not desire gunship duties. However, factors such as dependability and team performance emphasized by raters appear to contradict the self reported impulsive/independence of the ACE group. The rater received a questionnaire to rate the student identical to the one shown in Appendix A.

TABLE 3

FREQUENTLY OCCURRING REMARKS MADE BY RATERS OF TWO EXTREME GROUPS OF
AH-1 TRANSITION STUDENTS

High Rated Pilots Who 1 Obtained High AH-1 Grades		Low Rated Pilots Who 2 Obtained Low AH-1 Grades	
Characteristics	No. of Times Noted	Characteristics	No. of Times Noted
Dependable	22	Lacks aggressiveness	19
Aggressive	20	Lacks dependability	14
Good team worker	18	Does not desire gunship training	14
Has leadership qualities	16	Lacks self discipline	13
Competent	15	Lacks confidence	11
		Poor team worker	10
		Poor performance as an aviator	8

¹ The high group data is based on 5 pilots evaluated by a total of 46 raters.

² The low group data is based on 4 pilots evaluated by a total of 34 raters.

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Freeberg, N. E. Relevance of Rater-Ratee Acquaintance in the Validity and Reliability of Ratings. Journal of Applied Psychology, 1969, 53, 518-524.

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APPENDIX A TANK CREW STABILITY QUESTIONNAIRE (PT 5188)

Complete this for ATTACK PILOT CANDIDATE EVALUATION

Complete this form only if you are AH-1G qualified.

Instructions:

1. Evaluate this man in your unit/class in terms of your estimate of his potential ability to become a successful gunship/attack pilot. Determine where you think he would rank in a typical group of 25 pilots (number 1 the highest ranking, 25 the lowest ranking). Consider the ATTACK PILOT CHARACTERISTICS below prior to rating each man. Consider the entire group you are asked to evaluate and the following restrictions before beginning. (a) No more than two individuals may be placed in 1-5 column. (b) no two individuals will be assigned the same rating number. Do not rate yourself.
2. Under REMARKS, write a 2-3 sentence word picture to justify the numerical rating you assigned. State briefly the characteristics (desirable or undesirable) of this man that impressed you most.
3. Your ratings will remain anonymous. The packet you picked up has an ID number only to insure that you followed the restrictions when rating.

EVALUATED INDIVIDUAL'S NAME (Last, first)

DATE
DAY MONTH YEAR
/ /

ATTACK PILOT CHARACTERISTICS

DESIRES GUNSHIP DUTIES	AGGRESSIVENESS	CONFIDENCE
TACTICAL KNOWLEDGE	SELF-DISCIPLINE	TEAMWORK
TIMELINESS OF ACTION	DRIVE	INITIATIVE
MECHANICAL ABILITY	EFFECTIVE MAP USE	DEPENDABILITY

CANDIDATE'S
PRESENT LOCATION
(Circle one)

IERW

UNIT

TRANSITION
TRAINING

STANDING WITHIN A
25-MAN GROUP
(Circle one)

RELATIONSHIP TO
CANDIDATE
(Circle one)

HIS
CO

IP

IN SAME
UNIT

1	6	11	16	21
2	7	12	17	22
3	8	13	18	23
4	9	14	19	24
5	10	15	20	25

REMARKS:

HOW LONG HAVE YOU KNOWN THE INDIVIDUAL? _____ YEARS _____ MONTHS

RATER ID #